



# SeIRO<sup>®</sup> MPS-34 - pH Stable Membrane

Nanofiltration Spiral Module Series – 2540, 4040

## PRODUCT DESCRIPTION

<b>Membrane Chemistry:</b>	Proprietary composite nanofiltration membrane
<b>Membrane Type:</b>	pH stable nanofiltration membrane
<b>Molecular Weight Cut-Off (MWCO):</b>	200 Dalton
<b>Construction:</b>	Spiral wound element
<b>Major Applications:</b>	Acid and caustic recovery, product concentration
<b>Permeate Tube Material:</b>	CPVC

## SPECIFICATIONS

Part Number	Model	Rejection [%]		Permeate Flow gpd (m <sup>3</sup> /day)	Feed Spacer mil (mm)	Membrane Area ft <sup>2</sup> (m <sup>2</sup> )
		Glucose / Sucrose	NaCl			
0770061	MPS-34 2540 A2X	95 / 97	35	610 (2.3)	30 (0.8)	17.2 (1.6)
0770090	MPS-34 2540 A2Z	95 / 97	35	455 (1.7)	57 (1.4)	12.9 (1.2)
0770166	MPS-34 4040 A2X	95 / 97	35	2,240 (8.5)	30 (0.8)	60.3 (5.6)
0770092	MPS-34 4040 A2Z	95 / 97	35	1,520 (5.8)	57 (1.4)	43.0 (4.0)

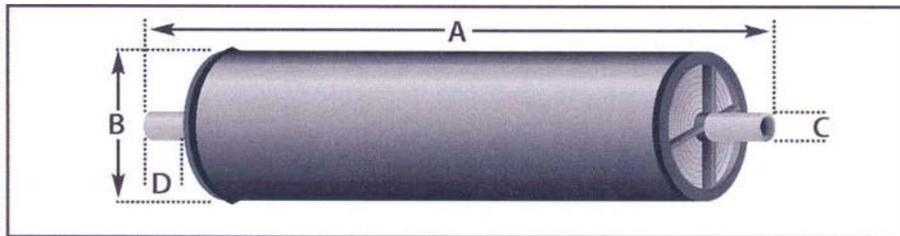
\*Test Conditions: RO water at 440 psi (30 bar), 86°F (30°C). Feed solution for rejection tests is 3% glucose / 3% sucrose or 5% NaCl.

## OPERATING AND DESIGN INFORMATION\*

<b>Typical Operating Pressure:</b>	220-510 psi (15-35 bar)
<b>Maximum Temperature:</b>	122°F (50°C)
<b>Allowable pH - Continuous Operation:</b>	0-14
<b>Allowable pH - Clean-In-Place (CIP):</b>	0-14
<b>Maximum Pressure Drop Per Element:</b>	10 psi (0.7 bar)
<b>Maximum Pressure Drop Per Vessel (5 in Series):</b>	50 psi (3.5 bar)

\*Consult KSS Process Technology Group for specific applications.

## NOMINAL DIMENSIONS



Model	A		B		C		D	
	inches	(mm)	inches	(mm)	inches	(mm)	inches	(mm)
MPS-34 2540	40.0	(1016)	2.4	(61)	0.75	(19.0)	1.0	(25.4)
MPS-34 4040	40.0	(1016)	3.9	(99)	0.75	(19.0)	1.0	(25.4)

## TYPICAL PROCESS STREAMS

5% Hydrochloric acid	15% Acetic acid	3% Sodium Hydroxide
37% Hydrochloric acid	5% Nitric acid	20% Sodium Hydroxide
15% Sulfuric acid	15% Phosphoric acid	10% Potassium hydroxide



## OPERATING GUIDELINES

### Membrane Characteristics:

SelRO® Composite nanofiltration membrane in a spiral wound configuration, with superior pH and temperature stability.

Performance specifications shown on the front side of this document are nominal values.

### Options:

- Feed channel spacers: 31 mil (X) and 57 mil (Z)

### Operating Limits:

- Operating Pressure:** Maximum operating pressure for SelRO® MPS-34 is 510 psi (35 bar). Actual operating pressure is dependent upon system flux rate, as well as feed, recovery and temperature conditions.
- Permeate Pressure:** Maximum allowed permeate pressure is 3 psi (0.2 bar).
- Differential Pressure:** Maximum differential pressure limit is 10 psi (0.7 bar) per element. Maximum differential pressure for any length vessel is 50 psi (3.5 bar).
- Operating and Cleaning Temperature:** The operating and cleaning temperature is limited to 122°F (50°C) for the 2.5" and 4" elements due to the material of construction of the permeate tube for the small elements.
- pH:** Allowable range for continuous operation is 0-14. When a stainless steel permeate tube is used, corrosive acids should be avoided.

### Water Quality for Cleaning and Diafiltration:

- Turbidity:** Maximum feed turbidity is 1 NTU.
- Guidelines:** For more details please consult with KSS Process Technology Group.

### Chlorine and Chemical Exposure:

- It is not recommended to expose the MPS-34 membrane to chlorine or other oxidants, as it may affect the membrane performance.
- Sodium metabisulfite (without catalysts such as cobalt) is the preferred chemical to eliminate free chlorine or other oxidizers in the feed.
- It is not recommended to expose the MPS-34 membrane to organic solvents, such as alcohol, acetone, etc.

### Feed Flow Rate:

Maximum and minimum flow rate for the MPS-34 spiral module are as follows:

- 2540 Minimum 2 gpm (7.5 liter/min)
- 2540 Maximum 5 gpm (19 liter/min)
- 4040 Minimum 6 gpm (22 liter/min)
- 4040 Maximum 17 gpm (65 liter/min)

Actual feed flow rate is dependent upon system flux rate, feed characteristics, fouling tendency and system design:

### Element Handling:

- Recommended Cleaning Materials:** Depending on the nature of the feed, the following cleaning agents can be chosen:
  - 0.1-5% w/w sodium hydroxide at 122°F (50°C)
  - 0.2-1% w/w nitric or phosphoric acid at 122°F (50°C)
  - 0.1-0.5% w/w detergent mix KOCHKLEEN® KLD-III
  - 0.5% anionic surfactant (such as SDS) at 122°F (50°C)

Consult KSS regarding the use of other cleaning materials.

- Lubricants:** For element installation, use only water or glycerin to lubricate seals. The use of petroleum or vegetable-based oils or solvents may damage the element and will void any warranty.
- Storage Solution:** Should be made with:
  - Short Term** (up to two weeks): 0.25 w/w sodium metabisulfite.
  - Long Term:** 0.7% w/w benzalkonium chloride.
- Glycerin should not be used for storage of the MPS-34 membrane.
- The membrane module should not get dry. It should be stored in a sealed bag, in a temperature ranging from 36°F - 86°F (2°C - 30°C).

### Service and Ongoing Technical Support:

Koch Separation Solutions (KSS) has an experienced staff of professionals available to assist end-users and OEM's for optimization of existing systems and support with the development of new applications. KSS also offers a complete line of KOCHKLEEN® membrane pretreatment, cleaning, and maintenance chemicals.

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Technical Customer Support

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